CLAIMS:

1. A method for controlling a system formed from a plurality of interdependent units to achieve an outcome, comprising the steps of establishing a desired outcome for the system, and establishing a desired action for each unit responsive to the outcome but independently of the desired action of the other units.

2. A method in accordance with Claim 1, wherein the desired action for a said unit is established in response to the current position of at least one reference portion of the system relative to a desired position of that reference portion.

3. A method for controlling a system formed from a plurality of interdependent units to achieve an outcome, comprising the steps of establishing a desired outcome for the system, and establishing a desired action for each unit responsive to the outcome, wherein the desired action for a said unit is established in response to the current position of at least one reference portion of the system relative to a desired position of that reference portion.

4. A method in accordance with Claim 2 or 3, wherein the desired action for a said unit involves calculating a difference value between the current position of a said reference portion and the desired position of that reference portion, and using said difference value to establish said desired action.

5. A method in accordance with any preceding claim, further comprising the steps of establishing an operation action for each unit; and instructing each unit to initiate its operation action.

6. A method in accordance with Claim 5, further comprising the step of iterating the method steps to update the operation action.

7. A method in accordance with Claim 6, wherein the rate of iteration is constant throughout the system.

8. A method in accordance with Claim 6, wherein the rate of iteration varies between units of the system.

9. A method in accordance with any one of Claims 5 to 8, wherein the operation action for at least some of the units is the desired action.

10. A method in accordance with any one of Claims 5 to 9, further comprising the steps of establishing constraint factors for the system, and establishing a constrained action for at least one unit responsive to the constraint factors.

11. A method according to Claim 10, wherein the operation action for a unit for which a constrained action has been established is the constrained action.

12. A method in accordance with either Claim 10 or 11, wherein only the constraint factors for a unit are utilised in establishing the constrained action for that unit.

13. A method in accordance with Claim 10 or 11, wherein constraint factors relating to at least one unit are utilised in establishing a said constrained action for another said unit.

14. A method in accordance with any preceding claim, further comprising the step establishing a plurality of intermediate outcomes to achieve the desired outcome.

15. A method in accordance with Claim 14, wherein the desired actions of the units are established in response to individual ones of the intermediate outcomes.

16. A method in accordance with Claim 14 or 15, wherein the system comprises a series of subsystems, each subsystem being comprised of at least one of the plurality of interdependent units, and the method further comprises the steps of establishing a said intermediate outcome for each subsystem, whereby the desired action for each unit is established responsive to the intermediate outcome of the subsystem to which it is associated.

17. A method in accordance with Claim 14 or 15, wherein the method steps are iterative so that a plurality of the desired actions for each unit is established over time, and whereby the desired actions are established responsive to a plurality of the intermediate outcomes.

18. A method in accordance with any preceding claim, wherein the outcome is dependent on a spatial relationship of the system.

19. A method in accordance with Claim 18, wherein the outcome is a predetermined spatial relationship of the system relative to a desired location.

20. A method in accordance with Claim 18 or 19, wherein the outcome is also time dependent.

21. A method in accordance with any one of Claims 18 to 20, wherein the desired action involves adjusting the spatial position of that unit.

22. A method in accordance with Claim 21, wherein the adjustment is by way of movement of the unit and/or expansion or contraction of that unit.

23. A method in accordance with any one of Claims 18 to 22 when dependent on Claim 2 or 3, wherein the outcome determines the desired position.

24. A method for controlling a plurality of interdependent units, comprising the steps of, for each unit, independently deriving an operation action, the operation action being responsive to starting information.

25. A method in accordance with Claim 24, wherein the starting information is selected from the group comprising a desired outcome, a desired action, a constraint action and a reference position.

26. A system for controlling a plurality of interdependent units moveable to achieve an outcome, the system comprising a controller arranged to implement a control methodology in accordance with any one of Claims 1 to 23.

27. A system in accordance with Claim 24, wherein the information regarding the presence of constraining factors is collected by a sensor.

28. A system in accordance with Claim 25, wherein the movement is performed by an actuating means.

29. A system in accordance with any one of Claims 24 to 26, wherein each interdependent unit is a constituent part of a robot.

30. A system in accordance with Claim 27, wherein each constituent part is a module in a robotic manipulator.

31. A system in accordance with any one of Claims 24 to 28, further comprising control means capable of switching the control methodology of the system to a centralised control methodology.

32. A computer program arranged to, when loaded on a computing system, perform the method of Claim 1.

33. A computer readable medium incorporating a computer program in accordance with Claim 30.

34. A computer program arranged to, when loaded on a computing system, perform the method of Claim 3.

35. A computer readable medium incorporating a computer program in accordance with Claim 34.

36. A system comprising a plurality of units, the units being interdependent and being capable of movement relative to one another, at least one actuator operative to move the units, and a control system operative to impart instructions to the at least one actuator to move the units, wherein the controller uses a control methodology in accordance with any one of Claims 1 to 23.

37. A system in accordance with Claim 36, wherein the units are interdependent by being in a predetermined spatial relationship.

38. A system in accordance with Claim 37, wherein the units are interconnected.

39. A system in accordance with any one of Claims 36 to 38, wherein the control system comprises a plurality of controllers located in respective ones of the units, each controller being operative to impart instructions to the at least one actuator to move the unit to which it is associated, wherein the controllers use a control methodology in accordance with any one of Claims 1 to 23.

40. A system in accordance with any one of Claims 36 to 39, wherein each unit is a constituent part of a

robot.

41. A system in accordance with Claim 40, wherein each constituent part is a module in a robotic manipulator.

42. A system comprising a plurality of subsystems, each subsystem comprising a plurality of units, the units being interdependent and being capable of movement relative to one another; at least one actuator operative to move the units in each subsystem; and a control system operative to impart instructions to the at least one actuator using a control methodology in accordance with any one of Claims 1 to 23.

43. A system according to Claim 42, wherein to achieve a desired outcome, intermediate outcomes are established for each of the subsystems, and wherein the control system coordinates movement of the subsystems by coordinating the intermediate outcomes for each subsystem.